Mobility as a Service
Creating an Open Environment for Public Transportation Agencies

29-Oct-2019 | Angela Miller for the TRB Panel on Mobility Management
<table>
<thead>
<tr>
<th>Year</th>
<th>Initiative</th>
</tr>
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<tbody>
<tr>
<td>1999</td>
<td>WMATA SmarTrip™</td>
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<tr>
<td>2002</td>
<td>Chicago ChicagoCard™</td>
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<tr>
<td>2003</td>
<td>London Oyster® City of Edmonton (NextFare)</td>
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<td>2004</td>
<td>BART EZ Rider</td>
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<tr>
<td>2005</td>
<td>Minneapolis Go To Card</td>
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<tr>
<td>2006</td>
<td>MARTA Breeze™ RMV/KVV Mobile Ticketing</td>
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<td>2007</td>
<td>PATH SmartLink℠ PATCO FREEDOM® Card</td>
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<td>2008</td>
<td>Los Angeles TAP® Brisbane go card BART NFC Pilot</td>
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<tr>
<td>2009</td>
<td>San Diego Compass Card Miami EASY® Card Modena, Italy</td>
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<tr>
<td>2010</td>
<td>MTA CharmCard™ MTC Clipper® Card Skåne, So. Sweden</td>
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<tr>
<td>2011</td>
<td>So. Florida – EASY® Card PATCO Open Payment Pilot Google Wallet Acceptance</td>
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<td>2012</td>
<td>Sydney Opal Card</td>
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<td>2013</td>
<td>Chicago Ventra Card NextBus Acquisition Google Wallet Acceptance</td>
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<tr>
<td>2014</td>
<td>London Future Ticketing Agreement Chicago Google/Pay Acceptance</td>
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<tr>
<td>2015</td>
<td>Vancouver Compass Card Ventra App</td>
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<tr>
<td>2016</td>
<td>So. Florida – EASY® Pay App</td>
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<tr>
<td>2017</td>
<td>New York New Fare Payment System Boston Fare Collection System and Services</td>
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<tr>
<td>2018</td>
<td>Brisbane Next Generation Ticketing System L.A Metro Mobile SF Bay Area Next Generation Fare Payment System and Services</td>
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PUBLIC TRANSPORTATION INDUSTRY CHALLENGES

- Public Transportation agencies face the daunting task of linking to myriad third parties
- Agile third parties transform services quickly, often ahead of policy decisions
- Negative impacts to quality of public transportation services from third party providers
- Customers want to seamlessly travel on a journey rather than worry about multiple providers
- Need to create a trusted and transparent service to ensure equity of pricing and planning
MUNICH, GERMANY

Munich use case without MaaS Marketplace

Angela wants to make a trip from her home in Munich to Marienplatz for a little shopping. It is Octoberfest, so everything is crowded and she is not sure the best mode to use. Angela gets immediately frustrated as she checks no fewer than 3 navigation apps, 3 transit apps, 3 bicycling sharing, 6 scooter, 3 ride-hail, 7 taxi, and 3 car share apps.

Angela decides to use a bicycle and opens the app to reserve a vehicle. When she arrives the bicycle is broken.

Angela gets immediately frustrated as she checks no fewer than 3 navigation apps, 3 transit apps, 2 bicycling sharing, 6 scooter, 3 ride-hail, 7 taxi, and 3 car share apps.

Angela decides on a scooter and walks to the scooter location.

Angela is flummoxed as she watches a gentleman try to load her scooter with 4 cases of beer while not reserving the vehicle.

Angela decides to take the bus and uses one app to plan the trip and opens another app to pay for the bus.

Because Angela slows down while walking distracted as she tries to pay on her app, she sees the bus pass her stop while she is 1/2 block away.

Angela goes home.
MUNICH, GERMANY

Munich use case with MaaS Marketplace

Angela wants to make a trip from her home in Munich to Marienplatz for a little shopping. It is Oktoberfest, so everything is crowded and she is not sure the best mode to use.

Angela uses the MVG app which she knows has multimodal options for travel.

Angela decides to use a bicycle and reserves the vehicle. When she arrives the bicycle is broken.

Angela reports the bicycle is broken. The app suggests alternatives and she chooses to reserve a scooter.

When Angela arrives she waves at a gentleman with 4 cases of beer scratching his head as he was unable to use the scooter to move them.

Angela rides to the store and happily shops among reveling Germans.
CASE STUDY: MUNICH, GERMANY – ANGELA’S PHONE
CASE STUDY: MUNICH, GERMANY
MAAS MATURITY MODEL

4 Integration of Societal Goals
   Policies, Incentives, etc…

3 Integration of the Service Offer
   Bundling/Subscription, Contracts, etc…

2 Integration of Booking and Payment
   Single Trip – Find, Book and Pay

1 Integration of Information
   Multimodal Travel Planner, Price Info

0 No Integration
   Single, Separate Services

1

How we think of MaaS
ECOSYSTEM THAT SUPPORTS HIGHER MAAS MATURITY GOALS

- Open marketplace with ability to self-provision
- Access to comprehensive information for analytics, policy, and journey planning.
- Payment processing, settlement, and apportionment services for all parties
- Information that adequately supports multimodal customer support
- Accessible, Equitable, and Transparent services for all
- Linked modes of transport that provide an overall integrated and customer-centered journey
BENEFITS OF TRUE MAAS OPEN COMMUNICATIONS

- Decrease cost and time to connect to new providers
- Open, secure, and transparent marketplace
- Access to entities that could expand service and improve customer satisfaction
- Ability to determine and enforce policies for transportation
- Ability to serve as mobility manager for city or region
Our vision of a marketplace
MAAS MARKETPLACE THAT PROVIDES HOLISTIC, OPTIMAL, AND PEOPLE CENTRED TRAVEL OPTIONS
Background Materials
MARKET DYNAMICS

TRENDS

GENERAL
- Sustainability
- Rising customer expectations
- Space constraints
- Funding constraints
- Petro/gas tax pressures
- Capitalless business models

TECH
- Human connectivity
- Fuel efficient cars
- Processing power
- Big data + analytics
- Internet of things
- Cloud

DEMOGRAPHIC
- Urbanization
- Population growth
- Aging population
- Millennials
- Congestion at peak

Growing urbanization, rising consumer expectations and changing demographics, together with declining traditional funding streams, are driving innovations and valuations in mobility technology.